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EDUCATION AND TRAINING

# **THE NATIONAL SHIPBUILDING RESEARCH PROGRAM**

## **Shipyard “Project XL” Feasibility Study**

U.S. DEPARTMENT OF THE NAVY  
CARDEROCK DIVISION,  
NAVAL SURFACE WARFARE CENTER

in cooperation with  
National Steel and Shipbuilding Company  
San Diego, California

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February 1997

NSRP 0481

**N A T I O N A L  
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Shipyard "Project XL"  
Feasibility Study

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in cooperation with

National Steel and Shipbuilding Company  
San Diego, California

# FINAL REPORT

## SHIPYARD "PROJECT XL" FEASIBILITY STUDY

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## **SHIPYARD "PROJECT XL" FEASIBILITY STUDY**

### **I. Introduction**

The "facility" portion of EPA's "Project XL" (for Excellence and Leadership) is an effort to provide enhanced regulatory and permit flexibility to excellent corporate environmental performers. Project XL facilities are expected to implement innovative environmental projects that work better for them, and that result in environment performance that is "superior to what would be achieved through compliance with current and reasonably anticipated future regulation." at the same or less cost. Some preference is offered to projects that can also help point the way to cleaner, cheaper, smarter environmental programs in the future.

Projects are implemented under a Final Project Agreement signed by the facility, EPA, and state or local regulators. In those agreements some requirements that would otherwise be applicable to the facility can be set aside or modified to reduce costs, provided some of the resulting savings are reinvested to provide greater environmental benefits elsewhere.

#### **A. Focus And Objectives Of This Project**

This report was prepared as a small scale, quick-turn-around product under NSRP SP-1 Project N1- 92-2, "Environmental Studies and Testing." The project is a limited feasibility study, and is not intended to provide a concrete or detailed proposal for a specific shipyard XL project, or a working guide to the project XL process. As defined in the project proposal, the limited goals of the project were (1) to review the XL Program and XL project experiences; (2) to assess the technical feasibility of a shipyard XL project; and (3) to provide a rough quantification of potential benefits from participation in an XL project.

"Technical feasibility" is defined for these purposes as the simultaneous existence of two sides to a potential trade: (1) opportunities to provide better environmental protection in the shipyard, and (2) environmental requirements or burdens that the shipyard would like to see eased. For purposes of this project, the existence of a potential tradeoff was defined as a "feasibility" condition because it was assumed that any participating shipyard would demand some net cost savings or operational benefit from an XL project. A return of this kind is necessary to justify the considerable transaction costs that negotiating an XL project agreement entails.

To prepare this report, McKenna & Cuneo, L.L.P. and Austin Environmental, Inc. have drawn on the experiences of San Diego boatyards and shipyards during development of a recently proposed "community" XL project in San Diego, on EPA policy statements, and on available materials discussing other XL projects. We have also considered two significant prior reviews of the XL program, one sponsored by the "Global Environmental Management Initiative" (GEMI) and conducted by Resources for the Future (RFF), reflecting an industry



perspective:1/ and one by a law professor.2/ McKenna & Cuneo has also drawn on its own experiences in working to salvage 3M's Hutchinson facility XL proposal, discussed below.

EPA's initial call for Project XL proposals was published in the Federal Register at 60 Fed. Reg. 27282 (May 23, 1995). More recent policy statements and descriptive materials on currently pending XL projects are also available at EPA's site on the internet. See <[http://199.223.29.233/xl\\_home/xl\\_.dots.html](http://199.223.29.233/xl_home/xl_.dots.html)> XL-related policy, guidance, and legal documents available on the internet include the following:

- 1 The original Federal Register Notice, dated May 23, 1995, soliciting XL project proposals
- 1 Eight criteria used to evaluate XL projects
- 1 EPA's Enforcement Policy for XL projects, a memorandum from the Office of Enforcement and Compliance Assistance, dated October 2, 1995
- 1 Guidance on Developing the Final Project Agreement dated December 1, 1995
- 1 Federal Register Notice, dated September 11, 1996, soliciting proposals for innovative environmental technologies
- 1 Principles for Performing a ~~Compliance Screen on XL Applicants~~ from the Office of Enforcement and Compliance Assistance
- 1 Memorandum from the Office of Policy, Planning, and Evaluation on dealing with projects that depart from the original scope of the proposal
- 1 A further clarification on EPA's enforcement Policy for XL projects.

Those documents, and proposals that have been approved for negotiations are also available by fax from EPA's Project XL Fax-on-Demand hotline, at 202260-8590.

#### B. Overview of Project XL

In theory, Project XL provides shipyards and other facilities with an opportunity to substitute customized, cost-effective environmental measures for more generic substantive, permitting and compliance assurance requirements that would otherwise be applicable. Past

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1/ GEMI describes itself as a "not for profit organization of 21 leading corporations dedicated to helping business achieve environmental, health and safety excellence." The cited report is Industry Incentives for Environmental Improvement: Evaluation of U.S. Federal Initiatives, Resources for the Future, September 30, 1996. (Hereafter, "the GEMI Study"), which reviews Project XL and other U.S. and European "environmental incentive" programs. An excerpt from this report is included as Appendix A.

2/ Rena I. Steinzor, "Regulatory Reinvention and Project XL: Does the Emperor Have Any Clothes?" 26 Env. Law Rptr. 10527 at 10528 (October, 1996). (Hereafter, "Clothes?") See also, Beth S. Ginsberg and Cynthia Cummins, "EPA's Project XL: A Paradigm for Promising Regulatory Reform," 26 Env. Law Rptr. 10057.

mistakes can be corrected, and previously unexploited opportunities can be pursued. The inherent limitations of agency-developed media-specific command and control regulations can be overcome. The confrontational assumptions that current compliance verification programs are based on can be set aside. Therefore, there should be substantial opportunities to achieve better environmental protection at reduced costs using the flexibility that Project XL provides.

The potential importance of Project XL is indirectly indicated by a widespread interest outside of EPA in examining the program and in making improvements. Some commentators would narrow the programs while others want to ensure that it has broad effects, as discussed below.

Project XL itself has significant limitations, however, as prior reviewers have noted. The program has no statutory basis, yet it attempts to make a difference in how things are done in an area where power is diffused. Therefore, reliable decisions on matters of importance require a broad consensus that can be difficult and expensive to achieve. Moreover, while each XL project will require consensus on specific issues, there is at present no clear consensus among key players about what the overall objectives of Project XL are or should be. A key area of dispute involves the fundamental question of what constitutes "superior environmental performance." The GEMI Study (see note 1) puts it this way: "many states seem to believe that XL is about alternative compliance while EPA insists facilities must go beyond compliance..." (Emphasis in original.) (GEMI Study, *supra*, Combined Executive Summary, page 3.) Flexibility to define alternative means of compliance is an express goal of some states. These states met with EPA in December 1996 under the umbrella of the "Environmental Council of the States" (ECOS) to seek more "common sense flexibility" under Project XL. Seventeen states are participating in this ECOS effort.

The GEMI Study also notes other problems with Project XL. Incentives to participate are weak, transaction costs are unexpectedly high, the risks of litigation and other failures are high, review cycles are long, and project proponents have received conflicting signals from EPA. (Id)

**c. EPA Objectives And Criteria For Project XL**

EPA expects each approved XL project to result in better and less costly environmental protection than could be achieved if existing requirements were rigidly applied. EPA's more specific objectives for Project XL are revealed by eight criteria EPA initially articulated for evaluating Project XL proposals,<sup>3/</sup> and by a subsequent policy document entitled "Principles for Development of Project XL Final Project Agreements."<sup>4/</sup> Project XL is still evolving rapidly, however, and EPA's criteria and objectives for this program are subject to refinement, future changes, or case-by-case adjustment.

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3/ 60 Fed. Reg. 27282,27287.

4/ See [http:// 199.223.29.233/xl\\_home/xl\\_fpa.html](http://199.223.29.233/xl_home/xl_fpa.html), or call the EPA's Project XL Fax-on-Demand hotline, at 202260-8590.

EPA's project XL criteria as set out in the Federal Register (for text, see Appendix B) are fairly general, and may be more useful as indicators of program objectives than as a guide for assessing or ranking project proposals. The criteria look to (1) environmental results; (2) cost savings and paperwork reduction, (3) stakeholder support; (4) innovation/multi-media pollution prevention; (5) transferability; and (6) feasibility. Project proponents are also expected (7) to monitor, evaluate and report on their projects. All projects must also (8) be consistent with Executive Order 12898 on "Environmental Justice."

Some of these general criteria have been clarified in later statements by EPA officials. EPA has also released a draft of the "criteria" that the agency has been using to determine whether a proposed XL project will result in "superior environmental performance." These draft criteria can be summarized as follows:

1. Better protection against "worst case" scenarios, by itself, does not constitute superior environmental performance. An example would be limiting allowable emissions, when actual emissions are already lower anyway.
2. Marginal benefits do not constitute superior environmental performance.
3. Potential benefits carry more weight if they are more certain to be achieved. Therefore, enforceable conditions carry more weight than corporate commitments or voluntary goals.
4. Proposals to relax enforceable regulatory requirements can be approved, but EPA will require very substantial corporate commitments to pursue superior performance goals.
5. There should be rough proportionality between the environmental benefits provided, and the value of flexibility being granted.
6. Superior environmental performance does not require reductions in every pollutant.
7. For plant expansion projects, the baseline for measuring superior environmental performance is based on the consequences of a plant expansion under current rules.
8. Where a project would generate savings from common sense alternatives to paper work requirements, EPA may want those savings to be reinvested in the environment. "But we have yet to settle on an approach to this kind of project."
9. EPA places emphasis on environmental benefits that are important to the informed local community.

Clearly, a determination of whether performance is "superior" requires reference to some baseline of performance. EPA's Federal Register discussion says that Project XL proposals can look to actual emissions, allowable emissions, or anticipated future emissions baselines to

demonstrate superior performance. In practice, the most persuasive indicator of superior performance is a reduction in emissions or wastes, but commitments to pollution prevention and innovation also carry some weight.

Considering these criteria as a whole, it is clear that there is a fundamental tension in Project XL: EPA wants to be flexible, to encourage innovation, and to reduce burdens, but it is extremely reluctant to actually relax existing substantive control requirements. EPA is also unable to provide reliable protection against enforcement if currently applicable requirements are relaxed. This tension goes along way toward explaining why most Project XL proposals are, in effect, either offers by facilities to reinvest cost savings if compliance assurance or permitting burdens are reduced, or are basically "bubble" or cap-and-trade proposals in Project XL wrappings. EPA has said it will consider bolder ideas than these, but has so far had few opportunities to do so.

#### **D. Proposals And Risks**

Experience indicates that Project XL proposals need not be highly innovative. Many XL proposals, for example, involve air pollution "bubbles", where total facility emissions of a pollutant are limited without separate limits on each relevant piece of equipment. In some states, "bubble" proposals have been possible under existing SIP rules for many years. Other Project XL proposals generate cost savings principally by reducing burdens in ways that are already within the discretion of permit writers. Some XL proposals anticipate regulatory changes that EPA has proposed but not yet promulgated or implemented, such as NSR reforms. A small number of proposals are bolder, and at least one comes close to including an inter-media trade: "tremendous" real reductions in water pollution may earn a Weyerhaeuser facility in Georgia a more flexible approach to MACT compliance.

Even when an XL proposal is not highly innovative, submitting that proposal under Project XL can provide substantial benefits. Ideas may be reviewed and specific proposals approved much more quickly than in other contexts. Regional EPA offices have more discretion, and there is less EPA headquarters review, than for similar proposals outside the XL context. State and local regulators may also be more willing to exercise their discretion to reduce unnecessary burdens, in part because under Project XL arrangements can be made to commit some of the money saved by reducing those burdens to achieve improved environmental performance.

Most XL projects are also likely to involve some costs and risks to the participating facility. It costs money up front to pursue a Project XL proposal, 5/ and that initial investment will provide little or no return if the XL project is not approved and successfully implemented. Approval cannot be assured, even for proposals with substantial early support. At some sites

5/ As of June, 1996, Intel estimated that it had spent about \$1 million attempting to get its XL permitting project in place. (See GEMI, at page 39.)

"national" stakeholders (i.e., the headquarters arms of major environmental groups) have intervened late and stopped projects that had strong local support.

Facilities proposing specific XL projects will also face agenda control risks. The project negotiation process itself is likely to involve a more intense, wide ranging, and substantive dialog with local stakeholders than is typically seen when separate conventional permits are at issue. Project opponents may do what they can to damage the facility's underlying credibility, and even project supporters are likely to have additional suggestions for things the facility should do.

Enforcement risks are also an issue. Even when XL projects are approved, EPA will typically provide only limited and qualified assurances that it will not enforce requirements that have been modified or set aside. Under current law, EPA typically cannot preclude enforcement by other "stakeholders," whether they participated in the project development processor not.<sup>6/</sup>

#### **E. Stakeholder Participation**

Facility XL projects are proposed to EPA by facilities, but are approved in Final Project Agreements only after discussions with affected regulators and stakeholders, including state and local agencies, representatives of the affected local community, local environmental advocacy groups, and EPA.

Where precedents of national importance could be set by a project, national environmental advocacy groups may also be considered to be stakeholders. This kind of participation has been a major factor in delaying key projects, including 3M's proposal for a more flexible air permit at its Hutchinson facility, and Weyerhaeuser's proposal for multimedia tradeoffs at a pulp mill in Georgia.

It is the project applicant's responsibility to set up and run this stakeholder participation process, and only limited guidance was initially provided by EPA concerning who must be included in this process or how the process should be conducted. EPA recently promised to issue a proposed rule to provide additional guidance. A late-November draft of that proposed rule was discussed at a public forum sponsored by EPA in January. The draft makes it clear that stakeholder participation is an important process that is likely to be demanding, and time-consuming for both industry and stakeholder participants.<sup>7/</sup>

<sup>6/</sup> Projects like the Merck PSD project, discussed below, may be an exception. In this case, a final project agreement limited to PSD procedures is expected to be implemented through a site-specific EPA rulemaking.

<sup>7/</sup> As of 1-7-96 EPA had not yet posted this draft guidance on the internet. The following summary is based on newsletter accounts (see, e.g., "Air Permit Report," January 3, 1997 at p. 9-12). EPA's guidance explicitly provides that "stakeholders" includes affected local community members, and others who are interested in broader concepts. The stakeholder are grouped by EPA into "direct participants," "commentors" and "the general public" based on their degree of participation in the stakeholder process. Project applicants are expected to identify potential (Footnote continued on next page)

Final project agreements are signed only by the project proponent, EPA, and the appropriate state and local agencies. Based on EPA's guidance, draft guidance, and past experiences, however, substantial community support for a project is in practice probably a requirement for approval. Experience suggests that non-opposition by major national environmental interest groups may also be a de facto requirement. Full agreement on the project by all local community stakeholders, however, is not required.

EPA has been criticized for allowing project applicants to run this stakeholder process,<sup>8/</sup> and has stated that it will release guidance "to help companies carry out adequate stakeholder processes" under Project XL by the end of 1996. In practice, however, the intensity and impact of stakeholder participation are likely to vary significantly from project to project, depending on the issues raised; on the level of local and national interest there is in those issues; and on the time, expertise and resources that local stakeholders can devote to a facility-specific public participation process. At present, there is no requirement that project XL applicants provide resources to any stakeholders to enhance their participation in this process. Instead, EPA has announced that it will provide grants of up to \$25,000 to stakeholder to work on Project XL proposals.<sup>9/</sup>

The importance of public participation to the project applicant will also depend on the enforcement considerations discussed later in this report. Stakeholder consensus, to the extent it is achieved and is robust (i.e., well informed and enthusiastic), reduces enforcement risks.

#### **F. Summary Of Project Experience, Lessons Learned, and Issues**

EPA published its original Federal Register notice seeking Project XL proposals on May 23, 1995. As of October 30, 1996, EPA listed one XL project as having reached the

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(Footnote continued from previous page)

direct participants and commentators and to consult with them prior to proposing a project, and to make "special efforts" to recruit both categories of participants during project development. Direct participants are to receive technical training and training on collaborative processes, and there is to be an explicit understanding as to whether the role of direct participants is advisory, consultative, or decision-making. While the project proponent conducts the public participation process up to the point a "proposed FPA" is developed, EPA expects to participate in training, to provide technical assistance, and to use the internet to facilitate communications. The proposed PPA then undergoes a noticed public comment period. In its draft rule, EPA commits to consider and to respond for the record to all significant comments it receives.

8 See "Clothes, supra, at page 10528.

9 BNA Environmental Reporter, Current Developments, Vol 27 p. 1907 (January 17, 1997).

implementation phase, 24 projects as in the proposal or development stage,<sup>10/</sup> and 15 projects as withdrawn. 15 withdrawals out of 40 proposals is a high failure rate, and suggests that many facilities that began this process with some enthusiasm later concluded that the program would not work for them.

Project XL has drawn published criticism for even considering some types of projects, which critics characterize as "regulatory free-for-alls."<sup>11/</sup> For example, proposals that would trade pollutants within a "class" (e.g., VOCs), across classes (e.g., VOCs for NO<sub>x</sub>), or across media are criticized because it is difficult to be certain that such trades actually benefit the environment in a particular case.<sup>12/</sup> These same proposals, however, are seen by other analysts as disappointingly modest.<sup>13/</sup>

Criticism of Project XL as too tolerant of bold proposals is probably misplaced, or at least premature. Few proposals actually submitted to date suggest true cross-media trades,<sup>14/</sup> or even trades of "toxic" for "conventional" pollutants in a single media. The most common variety of "substantive" XL proposal at present is probably the "air bubble" proposal. Some of these proposals have sought to break new ground,<sup>15/</sup> or have been combined with proposal to also address other facility environmental burdens. But air bubbles themselves have been possible in theory under existing programs for more than a decade. Moreover, the boldest XL trading proposals so far--those that use classes of pollutants, or that go beyond trading in a single

10/ This figure does not include potential projects that are being discussed at a pre-proposal stage.

11/ See, e.g. "Clothes?" supra at 10527-10529: "Project XL is damaging the reputation of site-specific, industrial self-regulation in the short term; further eroding public trust in government; undermining EPA efforts to control and prevent pollutions; and erecting barriers to competition in some of our more important industries."

12/ See, e.g., "Clothes?" supra at 10531.

13/ See, e.g., the GEMI Study, supra, which concludes that daring proposals are discouraged under Project XL, and that many projects therefore only involve "efforts that for the most part are possible to achieve without an initiative such as Project XL." Factors discouraging more ambitious proposals include underlying statutory requirements that cannot be fully neutralized, inadequate legal protection for applicants under EPA's enforcement policies for Project XL, and a de facto insistence on environmental performance that can be shown by conventional measurements to be superior to conventional regulatory baselines.

14/ Even the Weyerhaeuser proposal, discussed below, is not a clear trade of less real water pollution for more real air pollution. Real reductions in water pollution would be provided, but Weyerhaeuser's reward would be "flexibility" in meeting a future MACT standard.

15/ One innovative bubble proposal, submitted by Anheuser-Busch, sought to bubble among functionally related units at different locations. That proposal has been withdrawn.

environmental media--have been resisted by EPA and national environmental groups; the result has been delay, increased negotiating costs, and in some cases abandoned projects.

There have also been many XL proposals to streamline permitting procedures, or to reduce other administrative burdens (e.g., for monitoring, recordkeeping, reporting) with some reinvestment of savings. These proposals may result in “cheaper, smarter” regulation, but one is tempted to ask why facilities need to bargain with regulatory agencies and communities to achieve changes in procedures that were unnecessarily cumbersome and costly in the first place.

In theory, Project XL provides an opportunity for facilities to customize environmental laws to provide maximum environment protection for a given cost. But facilities have not been proposing and EPA has not been approving projects that include significant substantive tradeoffs, e.g., less control of water pollution for more control of air pollutants, or an easing of national technology-based requirements in return for more control of pollutants that actually matter in the local environment, or less control of new sources for more control of old, or a complete substitution of effects-based requirements for numerical limits on pollutants. Few project proponents have done much fundamental thinking about control strategies that would be cleaner, cheaper and smarter; instead, most XL proposals are nibbling around the edges of fundamental change, with bubbles and streamlining.

There are probably many reasons that this pattern has emerged in the first 20 or so months of the XL program. Environmental agencies and local stakeholders will of course be loath to see any backsliding in substantive environmental control efforts, and such backsliding is typically illegal. EPA’s enforcement policies under Project XL provide limited protection against EPA enforcement based on underlying requirements that are being violated, and no protection against “state” enforcement or citizen suits. In states that have not enacted “XL implementing legislation,” this state enforcement risk probably cannot be negotiated away by the state. Moreover, negotiations alone could not solve this problem even if a “gentleman’s agreement” among participating stakeholders could be relied upon. The universe of agencies with jurisdiction, prosecutors with independent enforcement authority, interested citizens and advocacy groups, and locally affected stakeholders, will typically be larger than the group negotiating and reaching consensus on any given XL project.

Rolling back substantive controls that have already been implemented may also provide smaller cost savings than avoiding stringent future controls. The control measures required first at a facility are least likely to be excessive and most likely to be reasonably cost effective. Looking back at these existing control measures, cost savings are likely to be much smaller than when looking forward, since capital costs are sunk and unrecoverable.

An important but unresolved question is mid-course corrections to Project XL will be implemented, and whether such changes will make a difference. EPA has proposed to provide guidance on “environmental excellence” and on stakeholder processes, and will begin to provide grants to stakeholder groups. The GEMI report and Professor Steinzor’s “Clothes” article have been followed by debates at a D.C. Bar Association forum in December, and by EPA’s own public meeting in January. Other research groups are also contributing to the debate; the Denver Research Group, for example, has suggested the Project XL “will prove to be among the most



important programs EPA has *ever* undertaken. ” Among this group’s suggestions was that the project focus on “dirtier” facilities, where smaller expenditures can bring greater environmental benefits.<sup>16/</sup>

In practice, unless “reforms” take hold quickly, it is likely that most XL projects will continue to seek savings by reducing recurring compliance assurance costs and by avoiding future costs, rather than by rolling back any existing substantive environmental protection requirement. Despite EPA’s stated goals, Project XL probably does not provide a useful opportunity to “reinvent” many existing fully implemented regulatory requirements. Shipyards will do well if they can use Project XL to convince environmental agencies *to* be smarter about imposing new requirements, or more receptive to specific suggestions from shipyards on ways to reduce compliance and enforcement burdens.

## **II. Review Of Selected Prior XL Projects**

This section provides brief descriptions of a limited number of Project XL proposals and their progress toward implementation. These brief descriptions focus on points that may be of particular interest to shipyards considering participation in Project XL. Readers are urged to consult EPA’s Internet site or fax-on-demand service for more complete and current information.

### **Berry Fruit Co. (Florida): One Stop Multi-media Permit**

This permit streamlining project has been approved for implementation. The proposed unified permit, which the facility will prepare for agency consideration, will integrate state and federal requirements and company operating procedures. The facility will also develop and proposed a unified set of reporting forms.

To provide superior environmental performance, the facility will improve training, reduce water consumption, use non-hazardous pest controls, reduce its air emissions, increase recycling, and strive to substitute less hazardous for more hazardous materials.

### **Intel (Chandler, Arizona): Multimedia Permit for Semi-conductor Facility**

A final agreement for this project was approved in November, 1996, based on a “master plan” for development of a multimedia permit. The permit will required Intel to operate in compliance with existing law in all substantive respects, but Intel hopes to “reduce unnecessary, burdensome and duplicative requirements within the constraints of existing law,” to develop a consolidated reporting form and integrated emergency planning document, and to streamline air permitting.

The air permitting scheme will allow flexibility under specific caps for total organic HAPs and for total inorganic HAPs, and will allow some substitution of modeling for monitoring

<sup>16/</sup> BNA Environmental Reporter, Current Developments, Vol 27 pp. 1932-1933 (January 24, 1997).

requirements. In return for these benefits, Intel has agreed to a technology-forcing plan for source reduction, and to a plan for water reuse and reclamation.

Like other Project XL proposals, this project was criticized by environmental groups, who sought additional water reuse and water conservation, more pollution prevention, and provisions for community and worker oversight and accountability. While these concerns delayed project approval, the final project agreement is essentially unchanged from the proposed agreement.

This appears, however, to be a case in which a Project XL applicant has bargained and paid to get regulatory reforms (i.e., the elimination of burdensome, unnecessary and duplicative requirements) that should have been implemented on their own merits. Intel received no relief from any substantive requirements, and made new substantive commitments to source reduction and water conservation. This trade was apparently worthwhile at this semi-conductor facility, where permitting flexibility may be particularly important, but the same trade might not be worthwhile at a shipyard.

#### **Navy (Puget Sound): Project “ENVVEST”**

As originally conceived, this project would have reprogrammed money now spent on NPDES monitoring at Puget Sound Naval Shipyard into a more meaningful data collection and data management effort. Data collection, data base management, and modeling efforts would be targeted to relevant knowledge gaps, with the goal of better understanding (point and non-point) sources of pollution, the fate and transport of contaminants in the environment, and the best regional strategy for reducing risk. In the long, these kinds of efforts were expected to result in an evolution of control programs away from technology based, end-of-pipe monitoring and control.

This original proposal has been withdrawn by the Navy. It may be reworked in an attempt to more clearly identify both the savings to the Navy, and the environmental benefits that will be secured using those savings.

#### **San Diego: Community Pollution Prevention Project**

This recent “community” proposal is of interest because the facilities initially proposed to be addressed in the project included three shipyards on leased Port Authority property in San Diego. Those yards participated in discussion leading up to the formal project application to EPA. However, the shipyards concluded that the project under development would not return benefits to them that would be sufficient to justify their likely costs. The decision of these shipyards not to participate in this “community” project would make it more difficult for these yards to work successfully with local regulators and environmental groups on any alternative “facility” XL proposal. Any shipyard XL project proposal should probably come from a shipyard outside of San Diego.

This project is interesting as an indication of how environmental groups may think Project XL could work to the benefit of both industry and the community. Under this proposal, facilities leasing land from the Port Authority in San Diego would be subjected to third party

audits of their water use, energy use, and pollution prevention practices. New requirements in these areas would be established, and incorporated into permits and Port Authority leases. A pollution prevention index would be developed so that progress could be measured and compared across facilities. This tracking would presumably require additional monitoring, recordkeeping and reporting.

To offset these new burdens, Port Authority tenants would receive *access* to new regional recycling centers that would be developed to handle their common wastes. Redundant requirements for pollution prevention reporting would be avoided, and current requirements for sediment monitoring would be reduced.

San Diego shipyards believe this proposal is premised on a false baseline of applicable regulatory requirements, and that it would be too intrusive. Current pollution prevention and pollution prevention reporting requirements, for example, are probably less burdensome and intrusive than the “streamlined” requirements that would likely to be required under this project. Current sediment monitoring requirements at these shipyards lack a technically valid foundation, and are being contested by the shipyards in the context of NPDES permit renewals.

Ongoing litigation between the shipyards and local environmental groups was also seen by these shipyards as making cooperation on a community XL project infeasible.

### **3M Company: Hutchinson Facility Multimedia Permit**

3M Company proposed an XL project to establish cap-and-trade air permits at three facilities. Because of planned facility modifications, the Hutchinson facility in Minnesota - one of 3Ms “cleanest” facilities - was addressed first. After a great deal of effort and protracted negotiations, 3M withdrew its application for this project in September, 1996 so that planning for facility modifications based on conventional permits could go forward. Subsequent negotiations to revive the proposal in a modified form failed.

This project would have replaced 20 or more air permits with one permit that would have capped air emissions at currently allowable levels, with a 25% reduction in that limit over five years. 3M would have had more flexibility for plant retooling and anticipated expansion over time, without waiting for completion of permitting processes, so long as total air emissions did not exceed facility-wide limits under this declining cap. 3M also wanted to reduce its reporting burdens, and also addressed hazardous waste management and stormwater issues in its proposals.

The State of Minnesota, and local environmental groups, and 3M’s neighbors strongly supported 3M’s proposal. In addition, Minnesota had enacted “XL legislation” that could have been used to provide protection against state enforcement of the requirements that 3M proposed to set aside. Regional EPA officials also initially supported 3Ms proposal, and continued that support after the proposal had been captured in draft permit language.

This project failed because EPA headquarters insisted on a guarantee that total air emissions in the future would consistently be at or below the levels that were currently being achieved, with allowances for facility modifications. National environmental advocacy groups

also objected to the suspension of specific requirements for specific units (e.g., MACT standards) under the proposed facility bubble.

Faced with this opposition and almost out of time, 3M withdrew its application and began work on conventional permit applications. It also brought in McKenna & Cuneo to attempt to negotiate agreements that would allow the XL proposal to be revived and approved. These efforts failed when capping issues became too complex and enforceability issues could not be resolved. 3M concluded that a streamlined and flexible permit was out of reach, and that it would be imprudent to transform its current actual emissions at “clean” facility into a legally enforceable limit on allowable emissions.

### **Weyerhaeuser (Ogelthorpe, Georgia): “Minimum Impact Manufacturing” Project**

The final project agreement for this project was signed on January 17, 1997. This project commits Weyerhaeuser to implement specific facility modernization measures that would substantially reduce effluent discharges and water use. Weyerhaeuser also agreed to implement certain odor control and energy conservation measures, and agreed to an air emissions cap. Hardware commitments are backed up by a non-binding goal of reducing bleach plant effluents and solid wastes by 50%, and a goal of further reducing energy use and HAP emissions. Weyerhaeuser also made a commitment to “continuous improvement” and waste reduction, and a commitment to upgrade environmental management systems to ISO 14001 standards.

In return for these commitments and goals, Weyerhaeuser will get “credit” against a future MACT standard for certain voluntary efforts it has already made to reduce HAP emissions. Weyerhaeuser has also been assured flexibility to rely on pollution prevention efforts to fully comply with the anticipated MACT standard; Weyerhaeuser believes this will reduce or avoid any need for add-on HAP controls. Emissions and discharge reporting will be streamlined into a biennial document. Air permitting procedures for facility modifications will also be streamlined, based on an air bubble. Weyerhaeuser initially proposed a wider range of regulatory exemptions, but EPA staff expressed concern about assuring a net environmental benefit under that proposal.

As of late October, 1996, after more than six months of negotiations, stakeholders were reported to be ready to sign a final project agreement. EPA was supportive but concerned that the agreement still needed further strengthening. A scheduled December signing ceremony was canceled, so that NRDC concerns with the final project agreement could be further considered by EPA.

This project is significant because it has been approved and because it will facilitate plant modifications that will increase production capacity. The project may not be representative of most XL projects, however, because it is a continuation of “minimum impact manufacturing” efforts by Weyerhaeuser that date back to 1979. Those Weyerhaeuser efforts have included a community outreach component. This philosophy, track record, and established community outreach program made it more likely that the Weyerhaeuser proposal would succeed. EPA probably also had a special interest in the Weyerhaeuser proposal because Weyerhaeuser’s proposed use of advanced technologies to reduce effluents would raise the bar on “best available technology” standards in future rulemakings and in permit decisions for other similar facilities.

It is discouraging that despite Weyerhaeuser's record at this plant, and these other considerations, EPA canceled a scheduled signing ceremony for an agreement that Weyerhaeuser thought had been finalized. Moreover, EPA does not appear to be giving Weyerhaeuser much in this agreement, despite promised reductions in water pollution that an EPA source has characterized as "tremendous." Credit for extraordinary prior pollution prevention efforts should be routinely provided in all MACT standards, and PSD procedures should not be so burdensome that streamlining them is a substantial benefit. In addition, Weyerhaeuser will get no more benefit from its facility emissions cap than EPA has proposed to provide to any facility under its NSR reform proposal.

### **Merck & Co (Elkton, VA): PSD Streamlining/Emissions Cap**

This facility is a major source of conventional air pollutants, located within a mile of a Class I area. This has made PSD review of proposed facility modifications necessary. PSD reviews are particularly cumbersome, slow, expensive, and susceptible to discretionary/arbitrary agency decisions. Merck was also concerned that implementation of Title V would further complicate permitting for expected facility modifications, even if PSD review was not necessary.

Merck originally proposed to address these problems by implementing a cap-and-trade system for all air emissions from the facility, including toxics. The Clean Air Act says that EPA and the states must implement programs of this kind for Title V and Title III sources, but this has not been done. Nor was this goal achieved *on* a site-specific basis for the Merck facility. Instead, Merck's proposal was pared back to PSD issues only, and made less certain. In five years, the effects of the agreement on the near-by Class I area will be reviewed, and this agreement will be cancelable.

### **III. Implications of Project XL Experiences To Date**

Project XL is now just over a year old. While few projects have actually been approved, some general statements about Project XL and shipyards are possible.

First, it is clear that the transaction costs that must be incurred to get approval of a Project XL Final Project Agreement are likely to be significant in every case. While NSRP funding to support a "pilot" shipyard effort could help to defray those costs for at least one project, any proposed project should itself provide significant benefits to the shipyard, either in terms of costs avoided, or flexibility gained.

Second, based on the proposals that have been approved and rejected to date, it appears that prospects for meaningful relief from any current or future substantive federal environmental requirement are more theoretical than real. A facility operating on that basis would, in any case, typically beat risk of citizens' suits.<sup>17/</sup>

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<sup>17/</sup> If EPA is willing to issue a facility-specific regulation or to modify a permit to ratify an XL project, enforcement risks will be substantially reduced. This kind of change in applicable law is the best defense against enforcement of "pre-project" regulatory requirements. Significant (Footnote continued on next page)

Relief from substantive “state-only” environmental requirements is a reasonable goal, and in most cases should not carry the same enforcement risks. Some states have enacted legislation allowing facility-specific multimedia or “unified” permits to override state regulatory requirements. Other states have variance procedures that could be invoked. Some states may be receptive to promulgation of a specific regulation or law to implement an XL regulation. Finally, state law may not authorize citizens’ suits to enforce the regulatory program at issue.

Third, past good works may get some credit (e.g., Weyerhaeuser) from EPA, but they may also get a performance baseline against which XL proposals will be judged. Project XL may therefore have more to offer at “dirty” facilities than at clean ones.

Fourth, even relief from “unnecessary, burdensome, and duplicative” requirements will have a price in addition to transaction costs. EPA’s guidance says the savings from this kind of streamlining can be shared with the facility proposing a project. Careful attention to and documentation of costs and savings may be needed to ensure a net savings to the facility.

Fifth, prospects for implementing a successful XL project with reasonable transaction costs are much lower for projects that attract the attention of national environmental groups. The more innovative and substantive a project is, the more likely it is to interest these groups, and therefore to fail. In addition, EPA is not demanding disciplined participation in early project negotiations by these groups; even an 11th hour interest can delay, force a change in, or kill a project.

Sixth, Project XL offers a different mix of benefits and risks at facilities that anticipate facility modifications. At these facilities, the prospects for increased “flexibility” and reduced permitting delay under Project XL can be particularly valuable. However, these kinds of proposals have frequently been pared back, or abandoned.

Seventh, it appears that EPA will typically review draft XL agreements several times. EPA regional office review and tentative approval may be followed by program office review and EPA, and then by enforcement review. It is unclear whether this is a deliberate tactic by EPA (“let me check with the sales manager”), a result of a sincere effort to delegate to the regions, *or* just poor management. It is a frustration that should be anticipated, however.

Eighth, it may be that EPA has as much enthusiasm for proposals that would raise the bar on BACT, LAER, or BAT determinations as it professes to have for “cheaper and smarter”

(Footnote continued from previous page)

enforcement risks are likely to remain, however, if a proposal contemplates violation of any underlying requirement that is not changed in this way. EPA forbearance may not bind state agencies, and vice versa. For some requirements, affected citizens (including environmental groups, neighbors, and self-interested competitors) may also sue. Ambitious independent prosecutors, and (in some states) bounty-hunting attorneys with no direct stake in the facility’s environmental practices, are other potential sources of enforcement risk.

proposals. Facilities that propose ground-breaking control efforts in one area may have significant negotiating leverage on other issues.

Finally, it is probably important for facilities not to get committed to an XL offer or benefit before a final project agreement is in place. New facts, or the presence of new players or new demands, may make it appropriate to abandon a proposal even though substantial transaction costs have been incurred.

#### **IV. Potential “Project XL” Building Blocks For Shipyards**

##### **A. Opportunities For “Superior Environmental Performance”**

###### **1. Blast Abrasive Recycling**

Environmental advocacy groups and regulatory agencies sometimes assert that reuse of a spent material is inherently environmentally superior to recycling or disposal of that material. Much of the spent blast abrasive generated by U.S. shipyards is currently “recycled” in cement kilns, or disposed. Ongoing NSRP work suggests that up to 80% of spent copper slag and coal slag blast abrasives could be reused as blast abrasive by shipyards, after fines separation and thermal treatment in a rotary calciner.<sup>18/</sup> This would be a form of pollution prevention and waste reduction, and at least in theory, an environmentally superior alternative to some current practices.

There are significant constraints to such reuse, however. Treatment and reuse of spent abrasive is likely to be practical and economical only if the rotary calciner is located near the user, due to high round trip transportation costs for abrasives. The typical scale of this kind of equipment is large compared to shipyard spent abrasive generation rates, which may limit this opportunity to very large ship repair operations, or to use in regions (such as San Diego and Puget Sound) with multiple shipyards.

The principal barriers to this option are community acceptance, and permitting costs and delays. While grit reuse may be laudable in theory, many local “stakeholders” could be expected to prefer the shipment of spent abrasives to another place, over operation of a thermal treatment facility in their back yard. Obtaining waste treatment, air, and effluent permits for such an operation could also be a slow, uncertain, and expensive process; these problems would be compounded in non-attainment areas, and for any facility that would accept grit from multiple generators.

In San Diego, construction of a rotary calciner near existing shipyards would likely provoke “environmental justice” objections that would preclude a successful project. For shipyards in other locations, these community acceptance and permitting problems might be

<sup>18/</sup> Prior NSRP work includes NSRP project N1-93-1, “Treatment of Spent Abrasives.” Additional work is underway or planned. See, e.g., NSRP project N1-97-4, “Particulate Emission Factors For Blasting Operations.”

manageable, and might be best addressed in the context of negotiations for a Project XL proposal.

## **2. Air Quality Best Management Practice**

Prior NSRP work<sup>19/</sup> has identified a large number of air quality BMPs that could be applied to shipyard processes. These potential practices are typically low cost, low technology measures that involve improved procedures and practices, housekeeping, employee awareness education, self inspection, preventive maintenance, containment measures, or minor equipment modifications.

It is difficult to compel effective and consistent use of BMPs by regulation or permit, because many of these measures depend on behaviors rather than capital investments, and affect emissions that are not monitored. This makes BMPs a good candidate for voluntary action in the context of a Project XL proposal. Any such proposal should include a management commitment to enhanced implementation of BMPs, with verifiable commitments to training and other “trackable” measures, and perhaps to independent BMP audits quarterly or semi-annually.

## **3. Storm water**

Storm water pollution from shipyards has been an environmental problem in the past and is a continuing source of concern among some regulators. Basic precautions to prevent storm water contamination, and some storm water monitoring, are required under federal law or delegated state programs. However, these programs typically do not require any storm water diversion or treatment.

More aggressive storm water management is possible, potentially including collection of all or some storm water (e.g., “first flush” storm water) for diversion to sewers, or for on-site treatment, recycling or reuse. An NSRP project to address these potential practices is awaiting funding.<sup>20/</sup>

<sup>19/</sup> Final Report #NSRP 0458, “Air Quality Best Management Practices (AQBMP) Resource Document For Shipyards,” November 1995.

<sup>20/</sup> N 1-96-7, “Stormwater Collection, Treatment, Recycling & Reuse in a Shipyard.”



#### 4. Coating Operations<sup>21/</sup>

The marine coatings NESHAP (MACT) will require major source shipyards to use low-VOC / low HAP-coatings. State implementation of the MACT standards in non-attainment areas will require some smaller shipyards to do the same thing. VOC and HAP emissions from marine coating operations could be further reduced in other ways, however.

The CAPE containment system in use at Metro Machine in Norfolk, VA is a demonstrated commercial technology that reduces VOC and HAP emissions from painting operations substantially. The technology was not identified by EPA as available for MACT purposes, and its use is unlikely to be compelled for any other shipyard in the U.S. in the near future, especially on a retrofit basis.<sup>22/</sup> Therefore, any proposal to deploy this technology would clearly constitute a proposal for “superior environmental performance” that would justify burden reduction and streamlining measures, and potentially even substantive tradeoffs in other areas. EPA may be interested in seeing the CAPE system deployed more widely on a voluntary basis, because this could enable EPA to designate containment systems as MACT, BACT, or BARCT in the future.

There may also be opportunities to reduce VOC and HAP emissions from marine coating operations by adding control systems to existing paint booths or buildings, or through careful selection of coatings.<sup>23/</sup>

21/ VOCS and VOHAPS in marine coatings have been addressed in many NSRP reports. See, e.g., NSRP Report 0376 (March 1993), “An Analysis of Air Pollution Control Technologies for Shipyard Emitted Volatile Organic Compounds (VOCS)”;

NSRP Report 0445 (May 1995), “Historical Overview of Efforts to Reduce VOC Emissions through Coating Reformulations and Analysis of VOC vs. HAP Content in Marine Coatings”;

NSRP Report 0458 (November 1995), “Air Quality Best Management Practice (AQBMP) Resource Document For Shipyards) (at pp. 33-36). Implementation of the recent federal NESHAP standard for marine coatings is addressed in an NSRP report under NSRP Task N 1-92-2, Subtask 12, “Shipyard MACT Implementation Plan and Compliance Tools.”

User friendly and up to date tools for estimating and characterizing emissions from marine coatings have been developed as part of NSRP SP-1 Project 94-1, “Title V Permitting for Shipyards.” A final report on that project is forthcoming.

22/ The technology would be a candidate for LAER status if any major new or modified painting operation required a permit in a non-attainment area; however, this issue is unlikely to arise in the U.S. shipbuilding industry anytime soon.

23/ Customer specifications will constrain any paint selection strategy, and the marine coatings NESHAP is likely to reduce variations in VOC and HAP content among brands of coatings. However, there may still be opportunities to select brands of coatings with lower VOC or HAP contents for some uses.

## **5. Hydroblasting**

There appear to be unexploited opportunities in the shipyard industry to substitute hydroblasting or other forms of low-emissions blasting for grit blasting. EPA's impending promulgation of a PM<sub>2.5</sub> ambient air quality standard may lead to increased regulatory pressure on blasting operations in some areas in the future. However, substitution of low-emission blasting for grit blasting before it is required by new regulations would provide "superior environmental performance."

## **6. Electrification And Clean Fuels Substitution**

The diesel fuel typically used in shipyard internal combustion engines and boilers is a relatively "dirty" fuel. Substitution of "clean" diesel fuel, propane, or natural gas can lead to lower emissions. In some cases, it may be feasible to substitute electric power for fuel use.

In some areas, the application of RACT or of more stringent state retrofit standards to diesel engines may lead to serious compliance problems; these standards appear to be more stringent than existing technology can justify. A "cap and trade" XL project that reduced NO<sub>x</sub> emissions significantly for some units at a shipyard might be a means to avoid the application of RACT to other units.

## **7. Waste Water Treatment**

Various past, on-going, and planned NSRP projects have investigated alternative technologies for treating shipyard waste waters.<sup>24/</sup> These studies address containment, pre-treatment and treatment. It is reasonable to assume that most shipyards could further reduce the pollution they discharge to water bodies and POTWs, through some combination of pollution prevention, reuse, and treatment. It is likely that NSRP funds could be secured to conduct any technical studies at a specific yard that might be needed to meet a Project XL commitment related to waste water.

## **8. "Third Party" Audits At Increased Frequency**

Actual shipyard environmental performance is sensitive to day-by-day diligence. Many regulators recognize this, but lack resources to inspect shipyard facilities frequently. Any shipyard that agreed to allow and to fire frequent audits by an independent third party would likely find that its regulators were willing to consider tradeoffs that would reduce regulatory burdens or increase flexibility.

Boat yards in San Diego provide a possible model for this kind of arrangement. Outside the context of Project XL, these yards have negotiated a cooperative agreement with water

<sup>24/</sup> See, e.g., NSRP Report 0452 (September 1995), "Filtration of Runoff from Pressure Washing Vessel Hull in Drydock;" on-going task N1-93-3, "Wastewater Treatment Technology Survey;" and recently funded task N1-95-2, "Shipyard Program for NPDES Compliance."

pollution regulators that will result in reduced NPDES sediment monitoring, but more frequent “inspections” of the boatyards by the Port Authority. The Boatyards also agreed to provide voluntary funding for a comprehensive Bay-wide monitoring program.

## **9. Control Welding Fumes**

Risk analyses for shipyards in California indicate that a large portion of estimated off-site health risk from shipyards is due to welding fumes, and particularly to fugitive emissions of hexavalent chromium when stainless steels are welded. Exposure to these fumes is also a potential worker health issue. An NSRP study has examined available technologies to capture welding fumes.<sup>25/</sup> Capturing these fumes can be problematic. However, any yard that committed to the capture and treatment of welding fume from stainless steel welding to the extent such capture was practicable could claim “superior environmental performance.”

## **10. Increase Ambient Monitoring**

Regulatory agencies have difficulty securing funds for water quality monitoring that is not tied to a specific permit, or for any but the most limited ambient air quality or toxics monitoring. It is also increasingly being recognized that many NPDES permits require more and more frequent monitoring than is needed to ensure a high level of permit compliance.

The Navy Puget Sound XL proposal discussed above would have substituted ambient for NPDES monitoring directly, with the expectation that other permit *terms* would be reconsidered based on the results of the ambient monitoring. Whether this project goes forward in this form or not, it is generally true that increased ambient monitoring will be recognized as providing an environmental benefit. Any offer to fund such efforts as an element of a Project XL proposal would likely be well received. (The San Diego boat yard arrangements discussed in item 8 above are an example.) Moreover, in many cases such monitoring could show that shipyards are not as significant a cause of environmental degradation as regulators and communities may believe.

## **B. Opportunities To Reduce Regulatory Burdens Or Increase Flexibility**

It is in some ways a credit to the NSRP SP-1 panel that past NSRP reports typically focus on means to better protect the environment, rather than on shipyard complaints about current regulatory requirements. Some opportunities to reduce burdens and increase flexibility can still be identified here, based principally on observations and discussion rather than on specific prior NSRP studies. In practice, of course, the shipyard benefits pursued in any XL proposal should be those most highly valued by the proposing shipyard.

<sup>25/</sup> See NSRP Report 0457 (August 1995), “Characterizing Shipyard Welding Emissions and Associated Control Options.” An earlier effort to develop quantitation tools was NSRP Report 0441 (June 1995), “Evaluation of Toxic Air Emissions.” Those tools have been superseded by tools developed as part of NSRP SP-1 Project 94-1, “Title V Permitting for Shipyards.” That project report is forthcoming.

## **1. Recycling**

Existing waste classification rules and permitting requirements are barriers to reclamation and recycling of blast grit at shipyards. An XL project that facilitated such recycling would benefit the environment and the shipyard. For spent grits that exhibit a hazardous waste characteristic, this kind of project is likely to be feasible only if implemented through a site-specific rulemaking that reclassified the waste.

## **2. RCRA “Point of Generation” Rule**

Some shipyards move surplus materials from their point of generation in the yard to a place or places at which trained staff can determine whether the materials are wastes to be disposed, materials to be recycled, or materials which should be held for later use on site. At least one such shipyard has been told that this practice violates RCRA’s “point of generation” rule, which states that RCRA wastes must be managed as such beginning at the point of generations. Strict adherence to this rule interpretation would complicate shipyard operations, and vastly increase training requirements in the shipyard.

In virtually any Project XL proposal, the proposing shipyard should seek a more flexible interpretation or application of this rule.

## **3. Coatings Averaging**

The marine coatings NESHAP requires compliance at all times on an as-applied basis. However, some shipyards may have a need to use non-compliant coatings from time to time. Flexibility to use such coatings, and to compensate for increased VOC or HAP emissions in other ways, would be useful..

## **4. Barriers to Equipment Replacement**

Whenever an applicable local air permitting program, or a Title V program, requires permitting review for a “modification,” the replacement of obsolete shipyard equipment is impeded. Such equipment may be “grandfathered” for some regulatory purposes--its use may be unrestricted, or a later-enacted control requirement may be inapplicable. In contrast, a “replacement” unit may be treated as new, and therefore as subject to NSPS, BACT or LAER and offset requirements, and perhaps to operating limits.

While it makes sense to demand good emissions performance from new equipment, this policy can be counterproductive when its practical effect is to perpetuate the use of high-emission equipment that might otherwise be replaced.

Some types of XL projects (such as cap-and-trade permits), if properly implemented, have the potential to reduce or eliminate barriers to equipment replacement.

## **5. Excessive Monitoring, Recordkeeping, and Reporting Requirements**

Based on discussions at NSRP panel meetings, there is a near-universal perception among shipyard representatives that the monitoring, recordkeeping and reporting obligations imposed on shipyards are both a significant burden, and in excess what is reasonably required to achieve environmental goals. Project XL proposals should seek reduced burdens in these areas. Particular attention should be paid to reducing or eliminating sediment monitoring, and reducing the frequency and sampling rate of NPDES monitoring, reducing chemical monitoring where bioassays are also required, and substituting on-site recordkeeping for routine reporting unless there *is* a violation to report.

Shipyards should also explore the possibility ‘that some relief may be available in these areas simply by asking for such relief. Any shipyard with a long history of negative results in NPDES or pretreatment effluent testing, for example, should ask its regulators to reduce the frequency of required monitoring.

## **6. Numerical Effluent Limits For Toxics**

Some shipyard NPDES permits contain numerical limits on specific toxics (e.g., TBT) that cannot be met by existing technology, that may not be needed to protect the environment, and that may not have been validly promulgated under the Clean Water Act. Challenging such limits judicially may be politically infeasible, or legally difficult due to the passage of time. Negotiating to ease such limits or to substitute bioassay-based toxicity limits may be more feasible in the context of an XL proposal.

## **7. Dredging Projects**

Any shipyard contemplating a dredging project could seek to streamline the regulatory aspects of that project as part of a Project XL proposal. The time, money, and uncertainty involved in the multi-agency permitting process for dredging projects could make this a particularly useful area for a shipyard XL project. There are ample opportunities to streamline redundant requirements and to reduce the costs of making required showings in this area.

A specific possibility might be a regional or multi-project approach to permitting for shipyards, boatyards and marinas. The San Diego Community XL Project may be a forum in which this could be pursued.

## **V. Potential Shipyard XL Projects**

The early Project XL experiences summarized above suggest how shipyard building blocks might be assembled in a Project XL proposal. A “mainstream” project could

include permit streamlining,<sup>26/</sup> or a cap-and-trade arrangement,<sup>27/</sup> or merely an offer to reinvest savings from reducing compliance assurance burdens. Bolder projects could propose to customize the application of a pending or existing requirement before substantial investments in compliance were made; ideally, these bold proposals would include a strategy to minimize enforcement risks. Any proposal should of course reserve some net savings for the shipyard, but EPA has also made it clear that there must be some rough correspondence of environmental benefits to shipyard savings.

The generic projects suggested here are merely starting points. Any shipyard attracted to one of these potential projects could be a candidate to prepare an XL proposal with NSRP assistance. Regardless of the “core” selected for a potential proposal, the shipyard should also catalog and value the most significant opportunities it can identify to reduce the administrative burdens associated with all currently applicable environmental requirements. The costs of pursuing an XL project, the likelihood of success, and any risks from exposure to a community review and comment process should also be considered. In most cases, some community consultation will be appropriate before a proposal is formally submitted. If important community groups or national environmental groups are opposed to a project, the prudent course of action may be to shelve the proposal.

#### **A. Blast Abrasive Recycling**

The economics of this kind of project are compelling; permitting and regulatory complications are the apparently explanation for this equipment not being in use already. These issues should be manageable, especially in areas where typical spent blast abrasive is not a hazardous waste.

Based on preliminary work for an NSRP project, a \$250,000 rotary calciner unit (capital cost only) operating continuously could treat about 17,000 tons of grit per year, with an 80% recovery rate. Grit acquisition costs (copper slag in San Diego) are currently about \$80 per ton, disposal costs for spent grit (or fines after reclamation) are about \$40 per ton. These costs will vary by region.

A calciner could potentially be operated at full capacity in the Norfolk area in San Diego, at Atlantic Marine, on a regional basis on the Gulf coast, and possibly elsewhere. If the unit even operated two shifts per day, to treat about 12,000 tons of grit per year, had O&M costs of \$5,000 per week (a guess), and debt service costs of \$75,000 per year (about right to amortize a five year loan at 15%), then total costs per 100 tons of usable grit (including disposal costs) would be

<sup>26/</sup> In practice, permit streamlining is likely to provide only small benefits to typical shipyards. because shipyards are unlikely to experience rapid growth or frequent major modifications that would require permit revisions.

<sup>27/</sup> Cap-and-trade arrangements should only be considered by shipyard that would otherwise be subject to some emissions limit that would constrain operations.

\$5,200.28/ In contrast, purchase, use and disposal of 100 tons of new material would cost \$12,000. This is a total savings of about \$800,000 per year. The economics of reclamation are compelling, and would improve with three-shift operations, a larger calciner, and after equipment was paid for.

#### **B. Enhanced BMTs and Audits In Return For Burden Reduction**

Shipyards know how to implement water and air pollution BMPs, and there is some precedent for relying on frequent “third party” audits to provide assurance that such BMPs are effective. In return for these increased efforts and verification, the shipyard could seek reductions in monitoring, recordkeeping and reporting requirements as discussed above.

Potential “add-ons” to this core trade could include a shipyard commitment to capture some welding fumes, or an agency agreement on where the RCRA “point of generation” rule would begin to apply in the shipyard.

#### **c. “Cap and Trade” Air Permitting**

This common form of Project XL proposal could have some applicability to shipyards that expect to become subject to any NSR-related, NSPS, or RACT control requirements in the near future. This would potentially include any shipyard that needs a Title V permit, and smaller yards in non-attainment areas.

Based on EPA’s NSR reform proposals, it might be feasible to negotiate a facility emissions cap at the highest level of actual emission in the past 10 years, and to avoid or streamline NSR review for any facility modification that (after netting) would not exceed this cap. However, the 3M experience suggests that a “declining cap” or a commitment to stay below a “future baseline” might also be required.

A “cap-and-trade” program could provide a lower cost opportunity for some shipyard modernization that would trigger PSD or NSR requirements. Environmental benefits could result from creation of an emissions cap where none existed before, or from commitments to reduce total facility emissions over time.

A proposal for HAP trading in marine coatings use might be logical addition to a proposal of this kind.

#### **D. CAPE-and-Trade Multi-Media Permit**

Any shipyard that voluntarily installed a CAPE containment system for blasting and painting might gain sufficient bargaining power to seek significant changes in applicable waste

28/ The figure in the text is based on 100 tons of waste processed to yield 80 tons for use at \$28 per ton reclaimed (\$75,000 plus \$260,000 / 12,000 tons), 20 tons of new grit purchased for makeup at \$80 per ton, and 20 tons of fines disposed at \$40 per ton.

water permits, streamlined opportunities to recycle, and reduced monitoring, recordkeeping and reporting burdens.

No shipyard should go forward with a CAPE system without seeking to extract offsetting benefits through the Project XL process.

#### **E. Waste water / Stormwater Treat-and Trade**

Any shipyard that was willing to voluntarily undertake additional waste water or stormwater control could also be in a strong bargaining position. Within the waste water regime, additional control might be substituted for reduced monitoring or the elimination of some or all numerical limits on toxics. Tradeoffs in the air area, increased RCRA flexibility, or reduced recordkeeping or reporting burdens could also be pursued.

#### **F. Dredging Projects**

The time, money, and uncertainty involved in the multi-agency permitting process for dredging projects could make this a particularly useful area for a shipyard XL project. There are ample opportunities to streamline redundant requirements and to reduce the costs of making required showings in this area.

One way to streamline these processes might to be address common issues for a group of projects or a region at onetime. The San Diego Community XL Project may be a forum in which this could be pursued, for shipyards, boatyards, marinas, marine terminals, navigation channels and the Navy.

#### **G. Zero-Based Monitoring**

The Navy Puget Sound proposal discussed above, on its own, could have substantial appeal for some regulators and communities.

For any individual shipyard, a rough approximation is that 50% of the total cost of NPDES testing could be saved and reprogrammed, by reducing monitoring frequencies from quarterly to semi-annually. For Puget Sound Naval Shipyard, annual NPDES monitoring costs are about \$150,000 per year. Based on these figures, and remembering that cost savings, must be “shared” between the shipyard and the environment, an XL project of this kind for a smaller shipyard would be likely to repay transaction costs only overtime, and only if the project was approved with little controversy and delay. Fortunately, this kind of reprogramming might be non-controversial enough to be readily implemented. NSRP funds might also help to offset transaction costs for an initial commercial shipyard proposal of this kind.

Potential project participants should also consider that even a dollar-for-dollar reinvestment of NPDES monitoring dollars into ambient monitoring would be likely to benefit the shipyard in the long run, by reducing enforcement exposure and by increasing the likelihood that the contributions of non-point sources to water quality problems will be better understood.



Reducing the frequency of monitoring and/or reporting may also have a role to play in the air area. For example, EPA recently proposed to unilaterally reduce reporting frequencies for NSPS and NESHAP requirements from quarterly to semi-annually. (61 Federal Register 47840.) Similar burden reduction proposals in the air area could be an appropriate addition to this kind of Project XL proposal.

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